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**(12) PATENT ABSTRACT      (11) Document No. AU-A-88884/91**  
**(19) AUSTRALIAN PATENT OFFICE**

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(54) Title  
**CIRCULAR PLUG TOP AND RECEPTACLE**

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(57) Claim

1. A power plug having its conducting blades or elements configured as a series of concentric rings, with the central conductive element being fixed in location by an insert to recess such elements below the outer edge of the outside casing.
2. The concentric and symmetrical arrangement of the plug conductors, insulation and casing allowing said plug to be inserted in any rotational orientation about its central axis point.

**ORIGINAL**  
**COMPLETE SPECIFICATION**  
**STANDARD PATENT**

Invention Title: ..... CIRCULAR ..... PLUG ..... TOP AND ..... RECEPTACLE .....

The following statement is a full description of this invention, including the best method of performing it known to me:-

..... This invention relates to a cylindrically symmetrical plug top and socket receptacle, for example a general purpose power outlet, which in combination forms an alternative to the existing three pin, 240 volt mains power plug and socket receptacle.

..... The present invention permits the power plug to be connected to its receptacle in any rotational orientation about its axis. It is thus inherently safe and easy to use for persons with impaired sight who otherwise would need to use the sense of touch to locate the correct orientation for connection of plug to socket. It is also easier to use for persons with disabilities, due to the  
10 self-guiding design of the device.

..... It has been found in practice, that the standard three pin 240 volt power plug has exposed pins, which when used in a partly unplugged position in relation to the power socket switched outlet, can expose the user to live potential across the active and neutral conducting pins, thereby under certain conditions placing that user in a life-threatening situation which may prove fatal.

..... The objects of this invention are to prevent such a dangerous situation ever occurring, and the invention achieves this requirement by the design

of both plug and socket, being such that there are no exposed conductors. All conductors being shielded and recessed behind the moulded and formed insulation materials of the outside casing, insulation insert and outer shroud.

The other objects of the invention are to help prevent physical damage to the plug conductors, which with present designs ( three pin type) are liable to damage from rough handling or misuse whilst in the loose or unplugged condition. The present invention allows for full protection of conducting elements of the plug, with successive insulation rings integral with the moulding of the outside casing. Thus physical pressure and jarring is better cushioned by the casing and concentric shape of the conductors gives greater resistance to physical damage when in the unplugged condition.

The configuration of the conducting elements of the plug, also gives a greater conductive surface area with which to make contact with the sprung fingers of the socket or switched outlet. Regarding normal electrical principals, the greater the surface contact area of two conductive elements, the lower the electrical resistance will be. This being the case, then it follows that the lower the resistance the greater is the current carrying capacity of those conductive elements. Therefore the circular plug can be safely given a higher current carrying capacity than a conventional three pin power plug.

20 A particular embodiment of the invention will now be described with reference to the accompanying drawings in which:-

Figure 1 is a vertical section of the plug (without electrical wiring depiction)

and

Figur 2 is a sectioned depiction of the disassembled plug showing how the individual parts are integrated.

and

Figure 3 is an isometric depiction of the inventions' associated flush mounted socket outlet and its conducting elements.

The plug top , Figure 1, has an earth contact pin 1-1 located in the centre of the concentric conductors , the active blade 1-2 surrounds the earth contact pin and the Neutral contact blade 1-3 forms the outer conductor.

In figure 2 , the contact blades of the plug 2-4, fit into each section of insulation inserts 2-5, 2-6, 2-7 , with these two sections being covered and enclosed by the plug shroud 2-8.

In figure 3, the flush mounted socket is depicted, showing the insulating case 3-1, with power on/off switch 3-2 and electrical state indicator 3-3. The conducting elements within the socket case are depicted as follows:- Earth 3-4, active 3-5 and neutral 3-6.

\*The claims defining the invention are as follows:-

Claim 1. A power plug having its conducting blades or elements configured as a series of concentric rings, with the central conductive element being cylindrical section pin or ring. The conductive elements being fixed in location by a moulding of electrical insulation material and insulated by an insert to recess such elements below the outer edge of the outside casing.

Claim 2. The concentric and symmetrical arrangement of the plug conductors, insulation and casing allowing said plug to be inserted in any rotational orientation about its central axis point.

Claim 3. The contact blades or elements to be made of suitable conductive metal which may be copper or brass. The outside casing and insulation inserts may be a plastic material and may be moulded with the conductive blades in the same operation. The mating connectors in the socket receptacle may be of a solid surface or comprised of sprung fingers, to increase the contact pressure between blades, pin and fingers.

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(BLOCK LETTERS)

4th December, 1991  
(Date)

\* Note: If there is insufficient space above to type the statement of claim, do not use this sheet, but use separate sheets of paper beginning with the words "The claims defining the invention are as follows:" and ending with the date and the name of the applicant in block letters.

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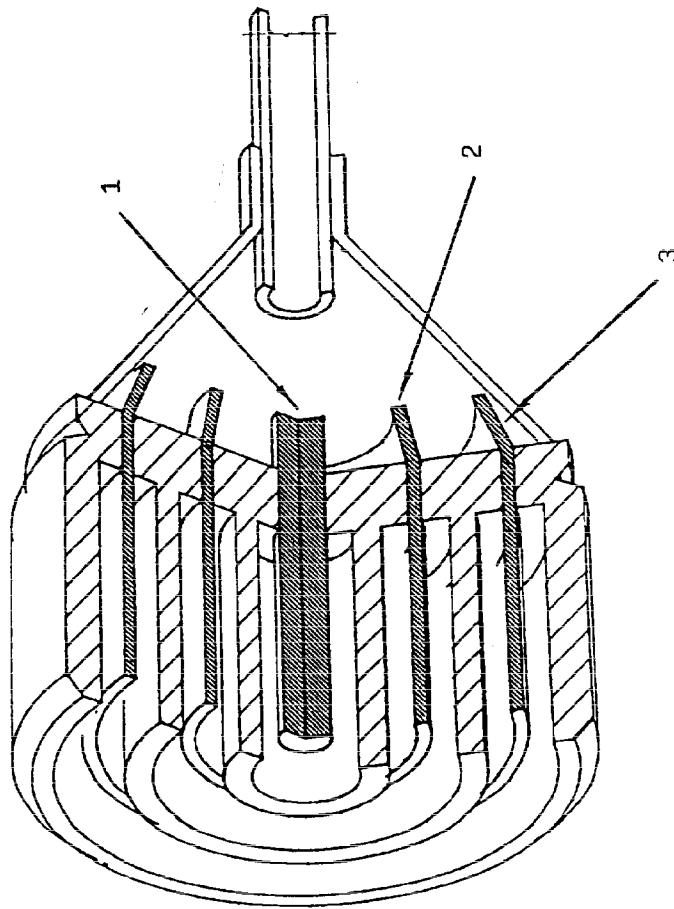


Figure 1

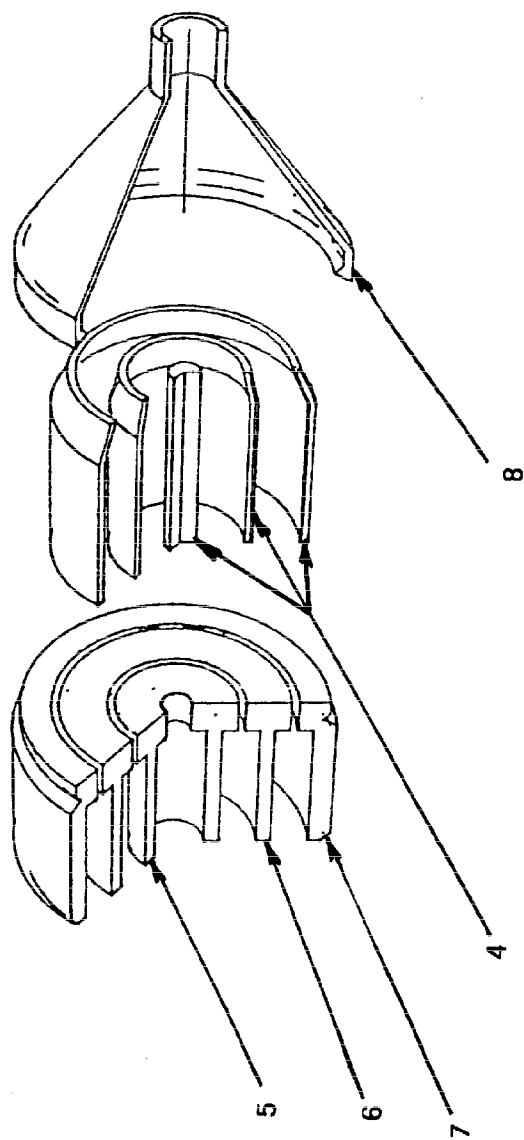


Figure 2

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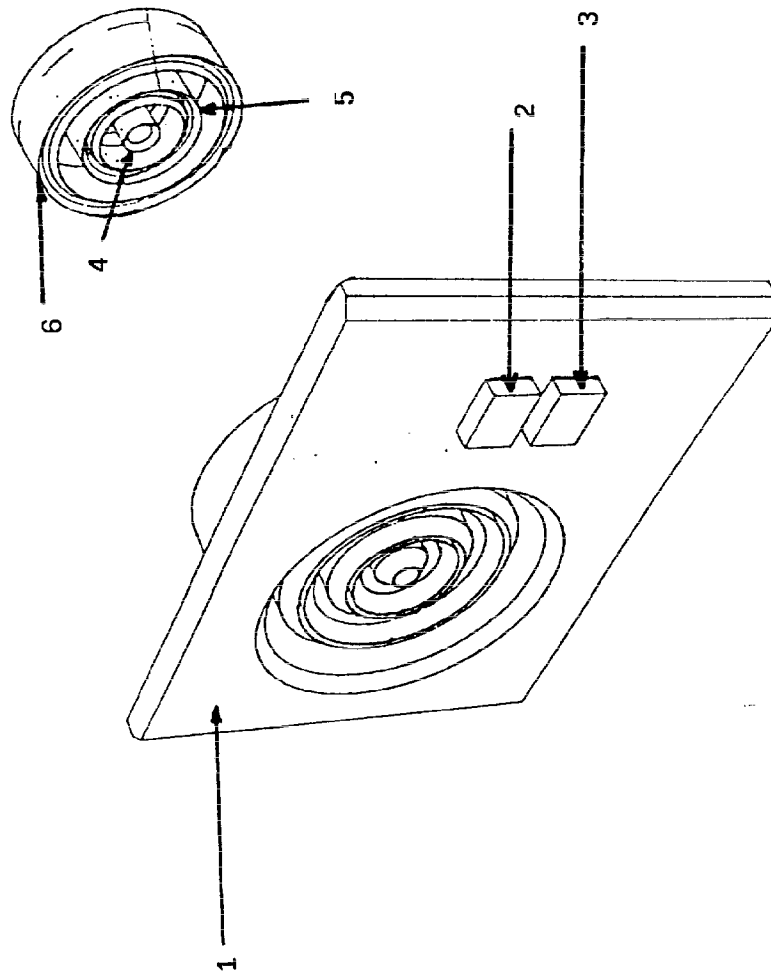


Figure 3